Colorado River Update & The Drought Contingency Plan

Tucson GUAC

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Arizona Department of Water Resources

September 28, 2018

Colorado River Allocations Lower Basin

LOWER BASIN - 7.5 MAF

California – 4.4 MAF

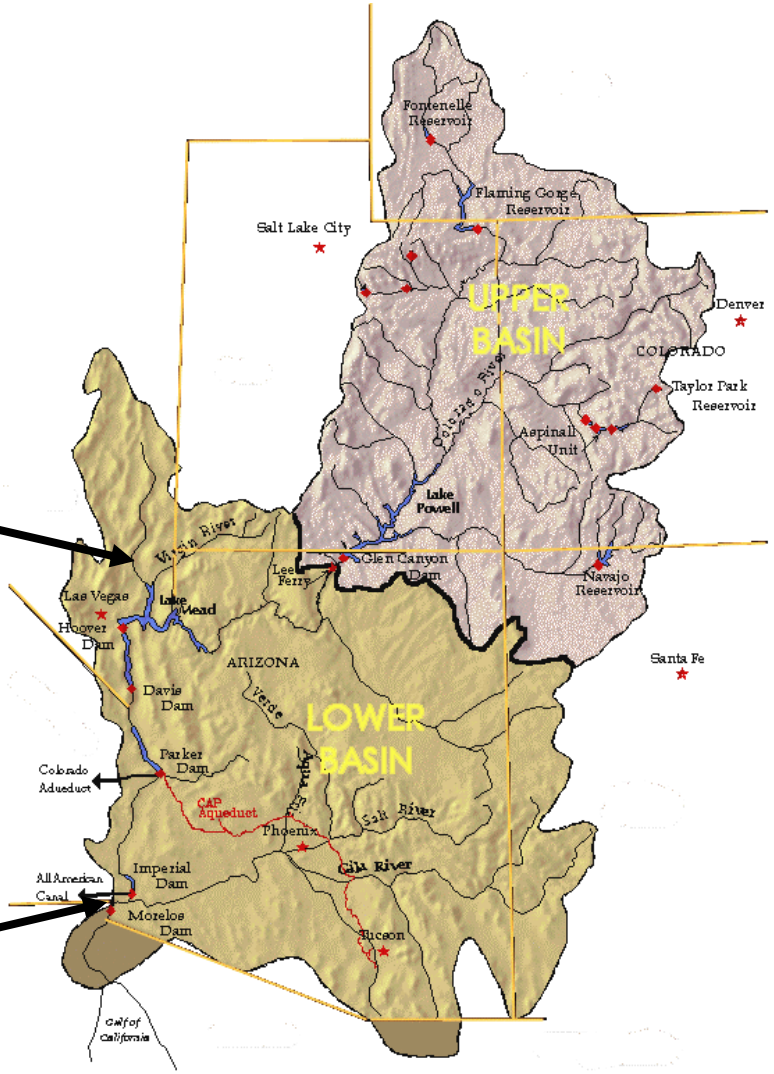
Arizona – 2.8 MAF

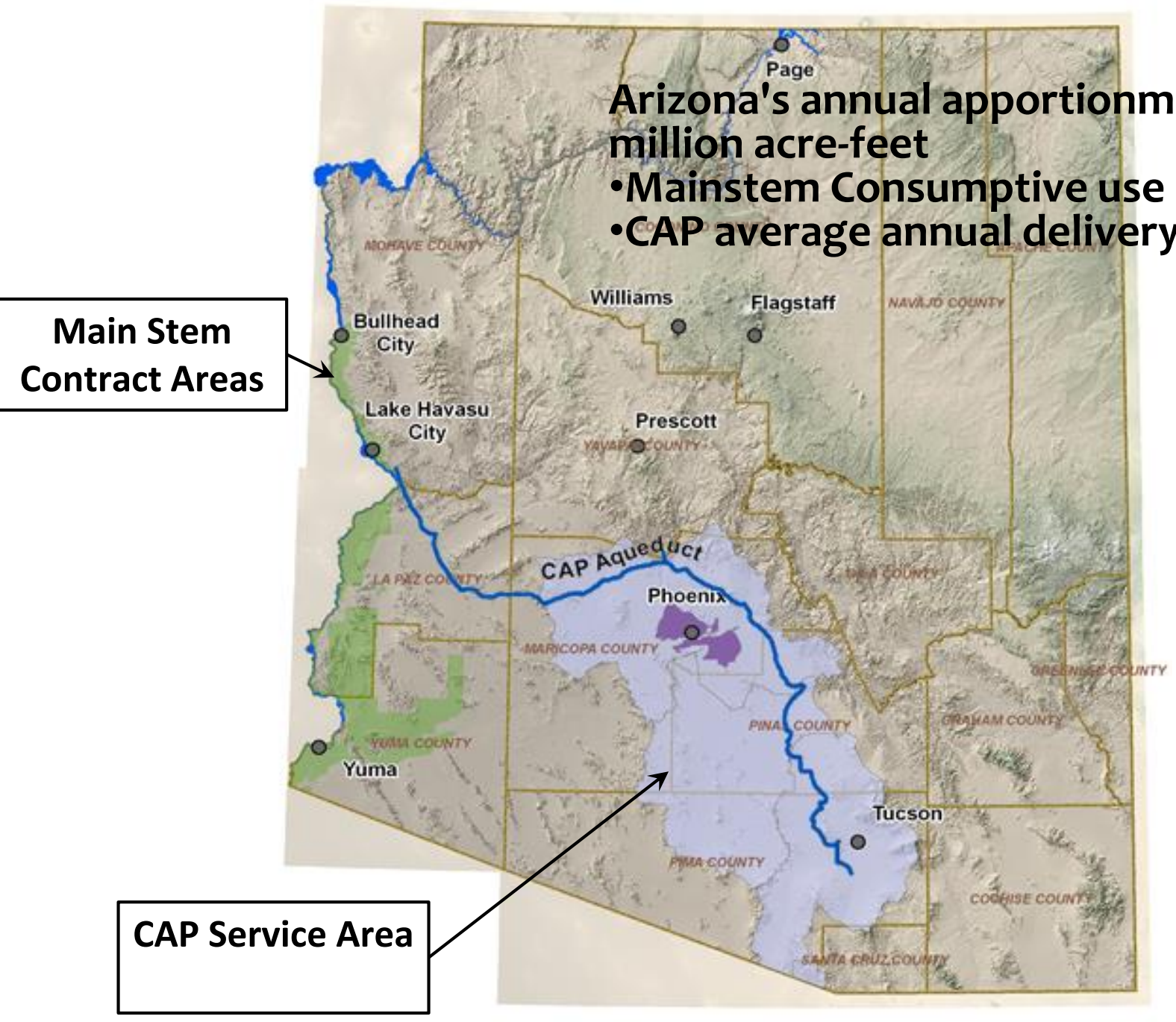
Nevada – 0.3 MAF

Lower Basin Allocations Established by the Boulder Canyon Project Act – 1928 (affirmed by AZ v. CA Decree)

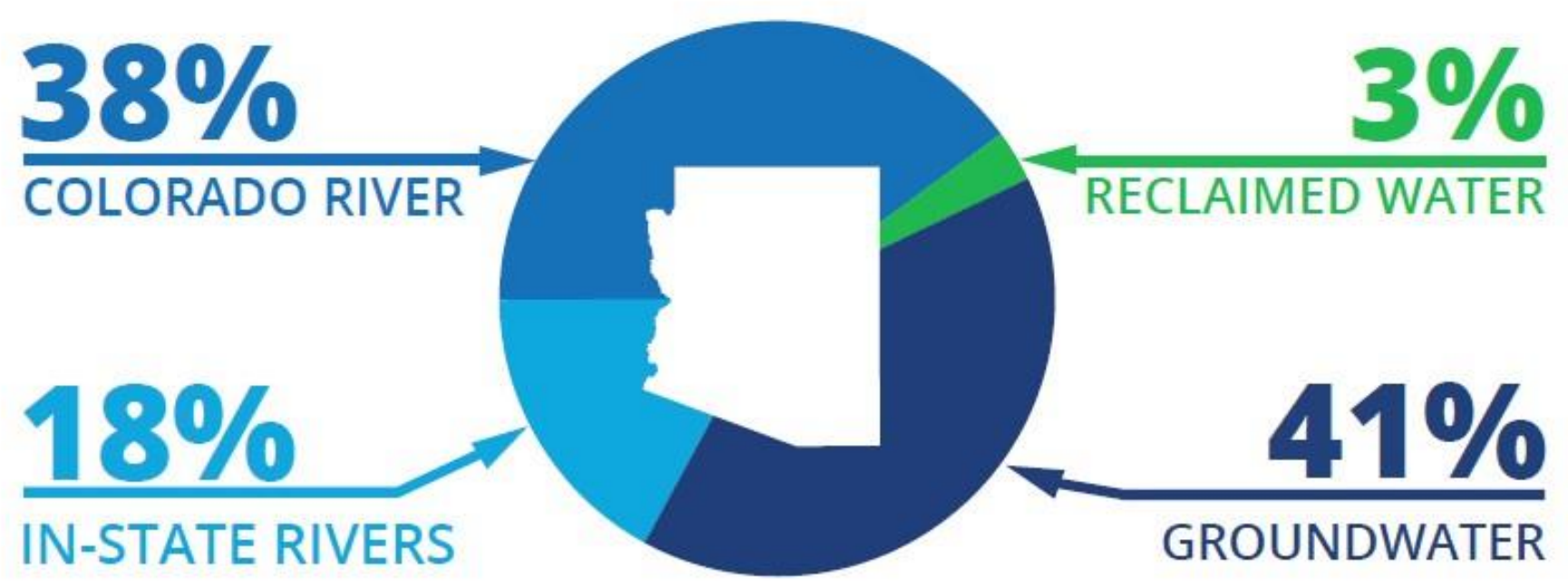
Mexico - 1.5 MAF

Established by Treaty with Mexico -1944

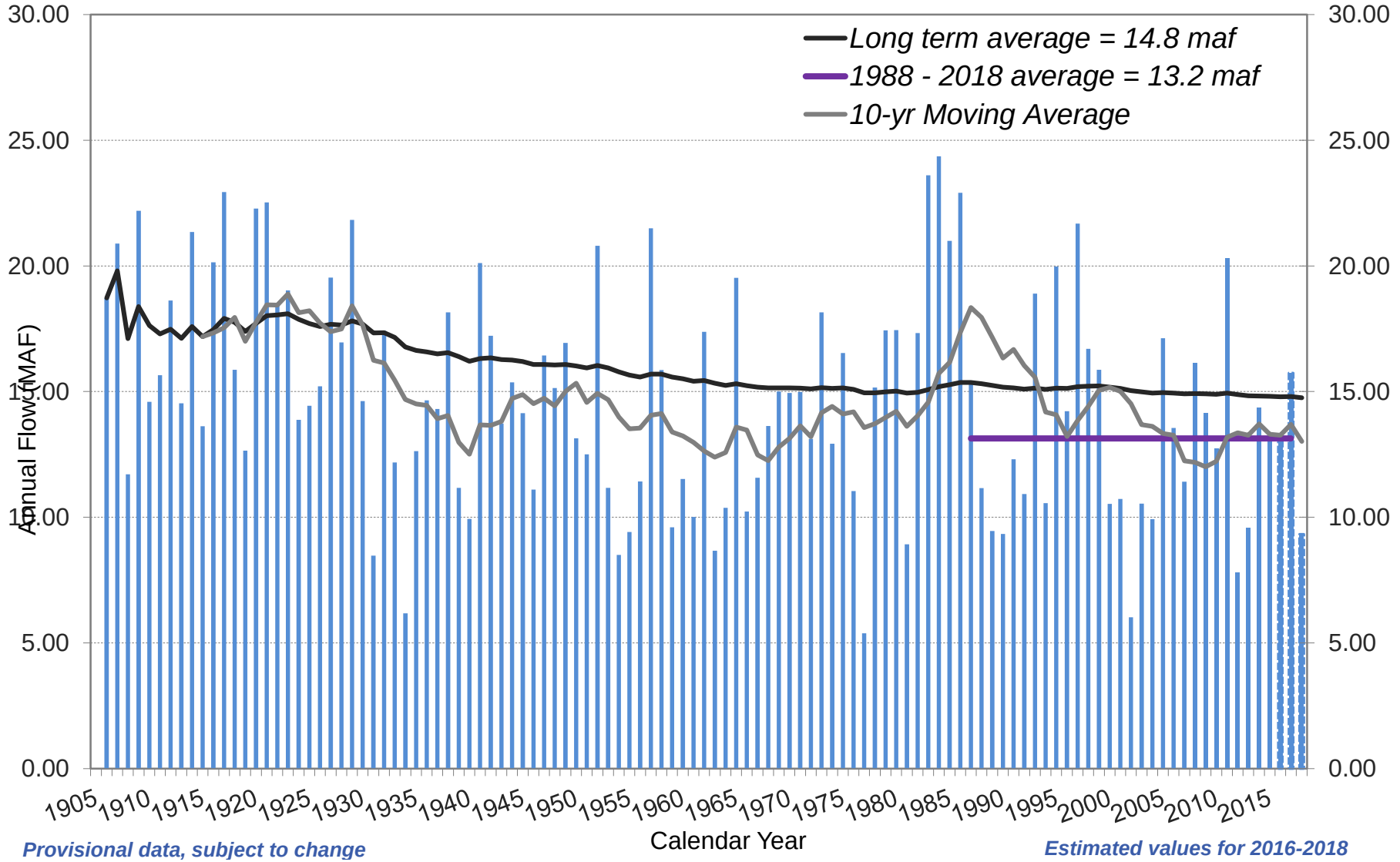



Arizona's annual apportionment of 2.8 million acre-feet
•Mainstem Consumptive use – 1.2 maf
•CAP average annual delivery – 1.6 maf
Main Stem Contract Areas
CAP Service Area
Page
Williams
Flagstaff
Bullhead City
Lake Havasu City
Prescott
Phoenix
Yuma
Tucson
CAP Aqueduct
MOHAVE COUNTY
NAVAJO COUNTY
LA PAZ COUNTY
MARICOPA COUNTY
YUMA COUNTY
PINAL COUNTY
GRAHAM COUNTY
PIMA COUNTY
COCHISE COUNTY
SANTA CRUZ COUNTY

Arizona Water Use By Source (2016)



Natural Flow
Colorado River at Lees Ferry Gaging Station, Arizona
Water Year 1906 to 2018



Provisional data, subject to change

Estimated values for 2016-2018

RECLAMATION
Managing Water in the West

Probabilities of Shortage on the Colorado River

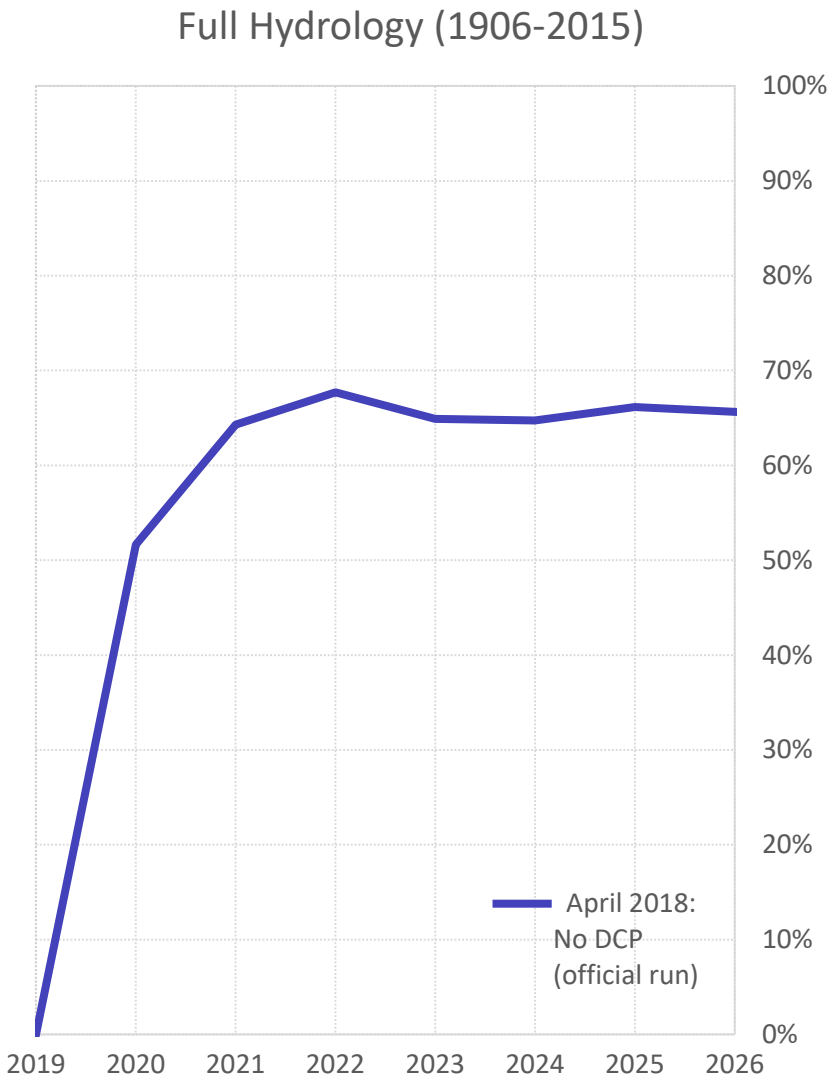
August 2018

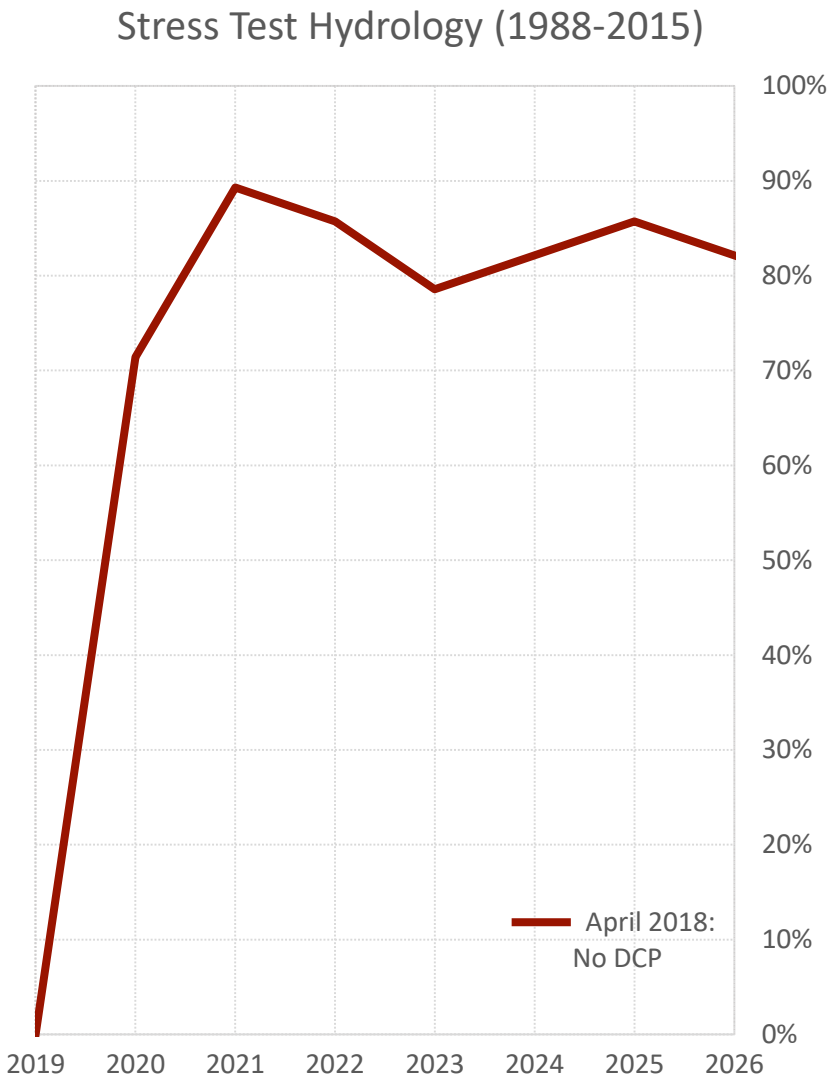
	2019	2020	2021	2022	2023
Probability of any level of shortage (Mead ≤ 1,075 ft.)	**0**	**57**	**68**	**70**	**65**
1st level shortage (Mead ≤ 1,075 and ≥ 1,050 ft.)	0	57	42	40	28
2nd level shortage (Mead < 1,050 and ≥ 1,025 ft.)	0	0	26	23	24
3rd level shortage (Mead < 1,025 ft.)	0	0	0	7	14

The probability for shortage in 2020 has increased from 52% in the April 2018 model to 57% in the August 2018 model.

*Based on Bureau of Reclamation CRSS Model Run – August 2018

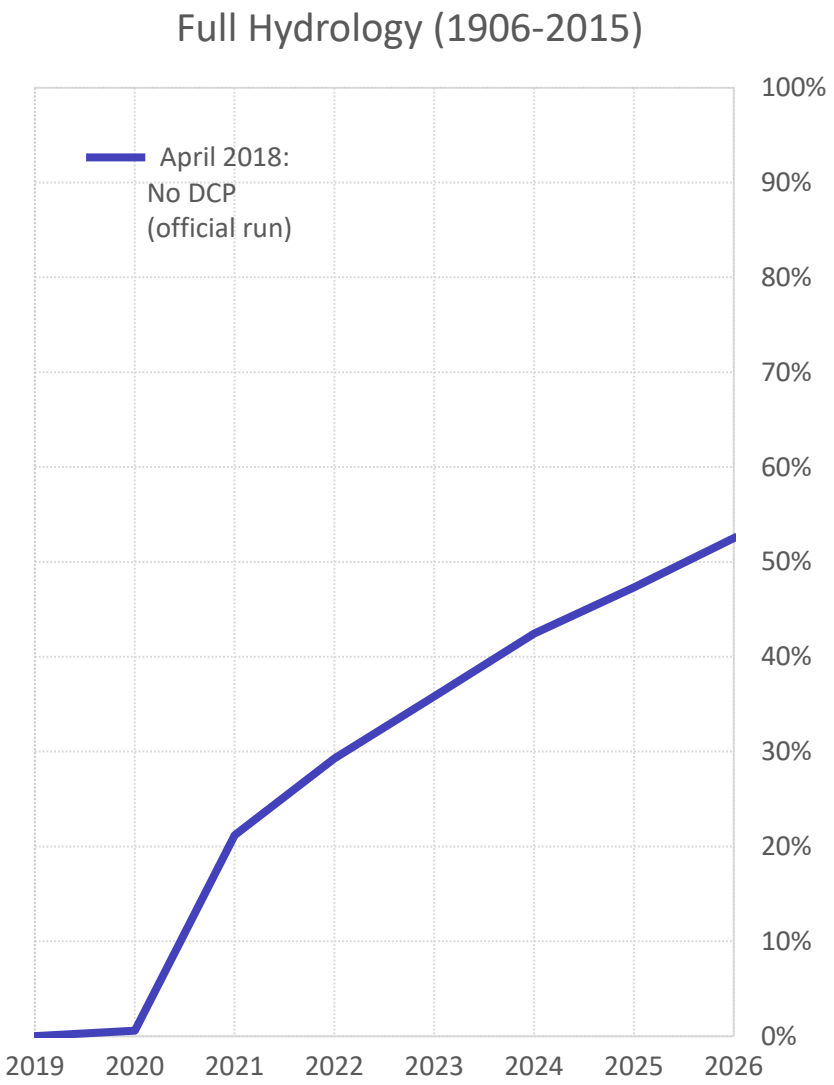
Risk of Lower Basin Shortage Conditions

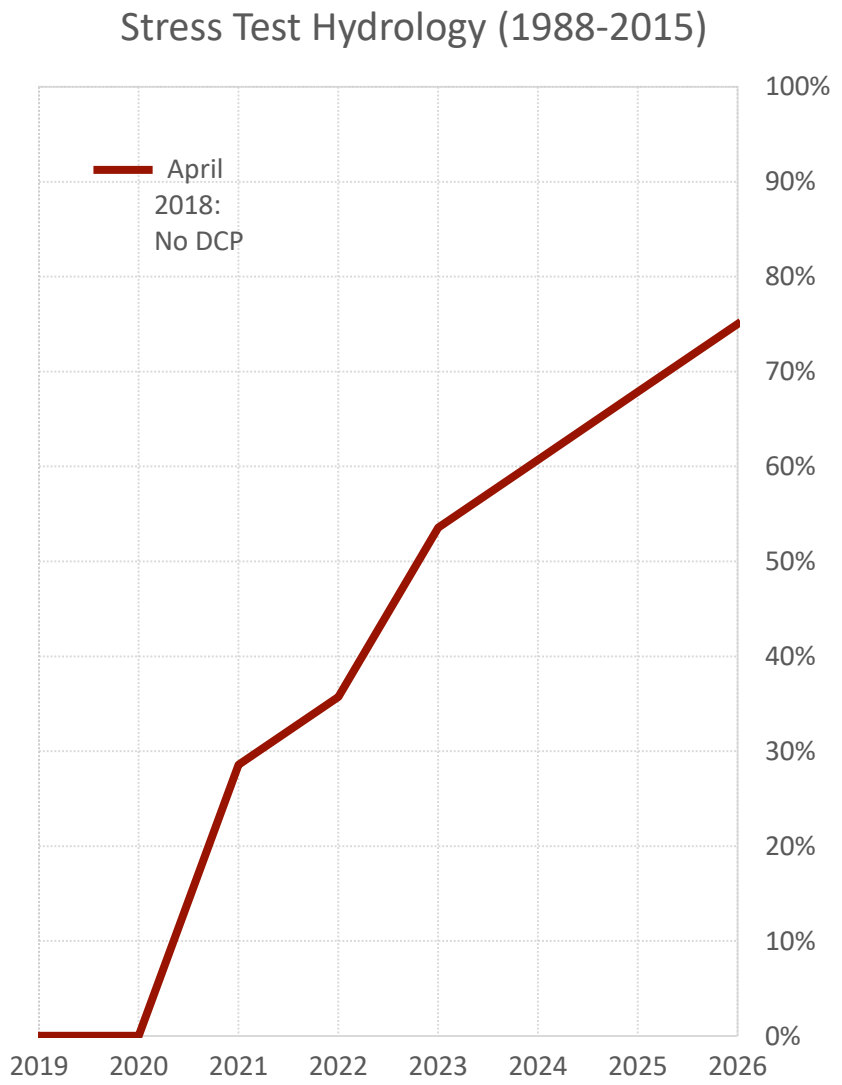




RECLAMATION
Managing Water in the West

Risk of Lower Basin Level 2 or 3 Shortage





RECLAMATION
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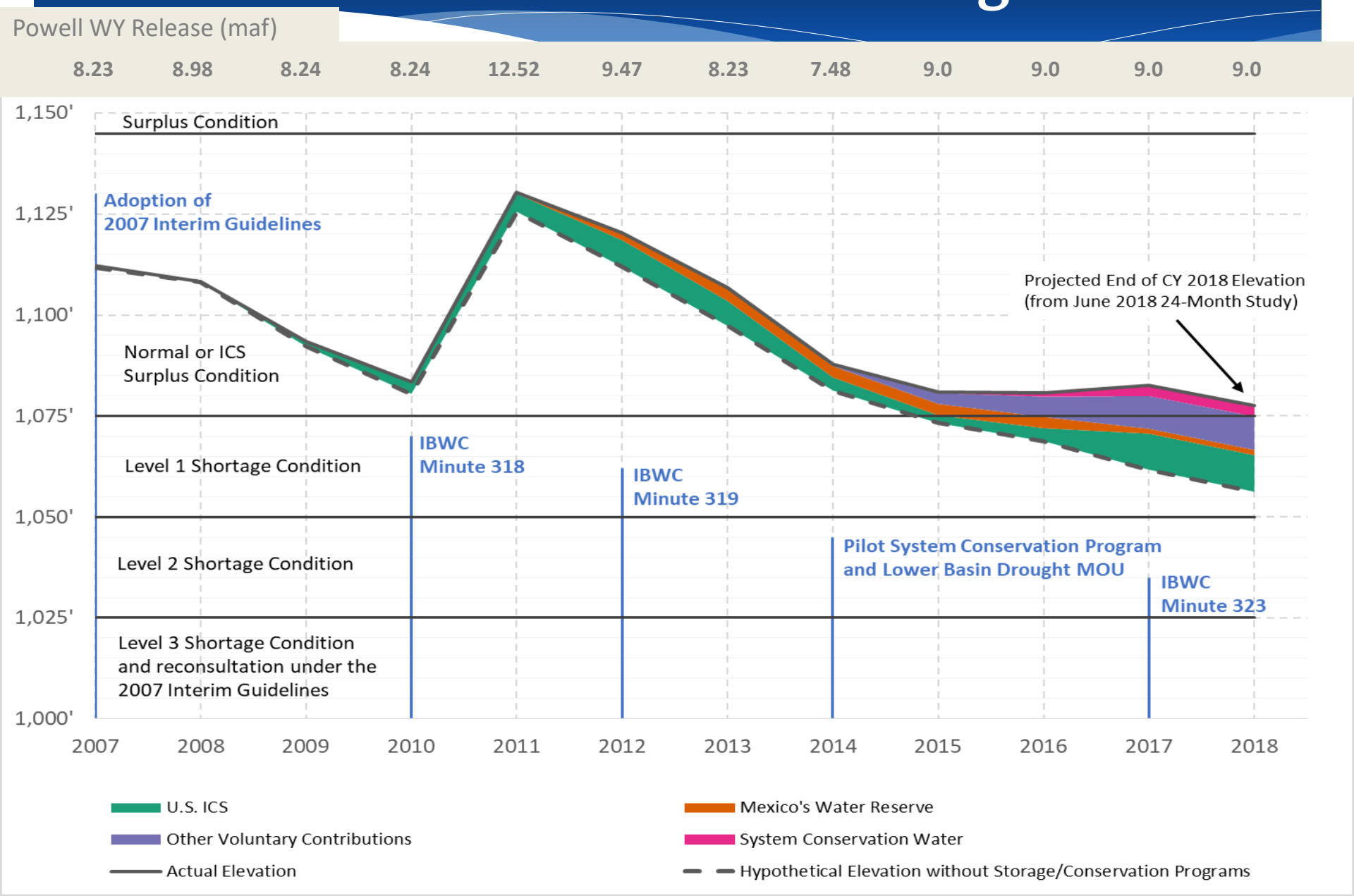
Actions to Avoid Shortage



Lower Basin Drought Contingency Plan

The Need:

Risks of Lake Mead falling below 1025' has doubled between development of 2007 Interim Guidelines and 2013

The Goal:

Reduce the probability of reaching critical elevations that would cause draconian reductions in water deliveries

The Strategy:

- Avoid and protect against the potential for Lake Mead to decline to elevations below 1,020 feet by collectively taking additional actions
- Includes a commitment by the U.S. to work to create or conserve Colorado River system water
- Recovery of additional reduction volumes would be allowed under certain conditions

Lower Basin DCP Water Use Reductions

Lake Mead Elevation	AZ 2007	AZ DCP	AZ TOTAL	NV 2007	NV DCP	NV TOTAL	CA 2007	CA DCP	CA TOTAL	BOR DCP	MX Min 323	MX BWSCP	MX Total	TOTAL
≤1090 >1075	0	192K	192K	0	8K	8K	0	0	0	100k	0	41k	41k	341k
≤1075>1050	320K	192K	512K	13K	8K	21K	0	0	0	100k	50k	30k	80k	713k
≤1050>1045	400K	192K	592K	17K	8K	25K	0	0	0	100k	70k	34k	104k	821k
≤1045>1040	400K	240K	640K	17K	10K	27K	0	200K	200K	100k	70k	76k	146k	1,113k
≤1040>1035	400K	240K	640K	17K	10K	27K	0	250K	250K	100k	70k	84k	154k	1,171k
≤1035>1030	400K	240K	640K	17K	10K	27K	0	300K	300K	100k	70k	92k	162k	1,229k
≤1030>1025	400K	240K	640K	17K	10K	27K	0	350K	350K	100k	70k	101k	171k	1,288k
≤1025	480K	240K	720K	20K	10K	30K	0	350K	350K	100k	125k	150k	275k	1,475k

Lower Basin Drought Contingency Plan

The Need:

Risks of Lake Mead falling below 1025' doubled between development of 2007 Interim Guidelines and 2013

The Goal:

Reduce the probability of reaching critical elevations that would cause draconian reductions in water deliveries

The Strategy:

- Incentivize ICS creation/storage
  - *Agree that ICS may be withdrawn at lower Lake Mead elevations, similar to ICMA arrangements under Minute 319*
  - *Modification of the evaporative losses currently applied to ICS*

Lower Basin Drought Contingency Plan

The Need:

Risks of Lake Mead falling below 1025' doubled between development of 2007 Interim Guidelines and 2013

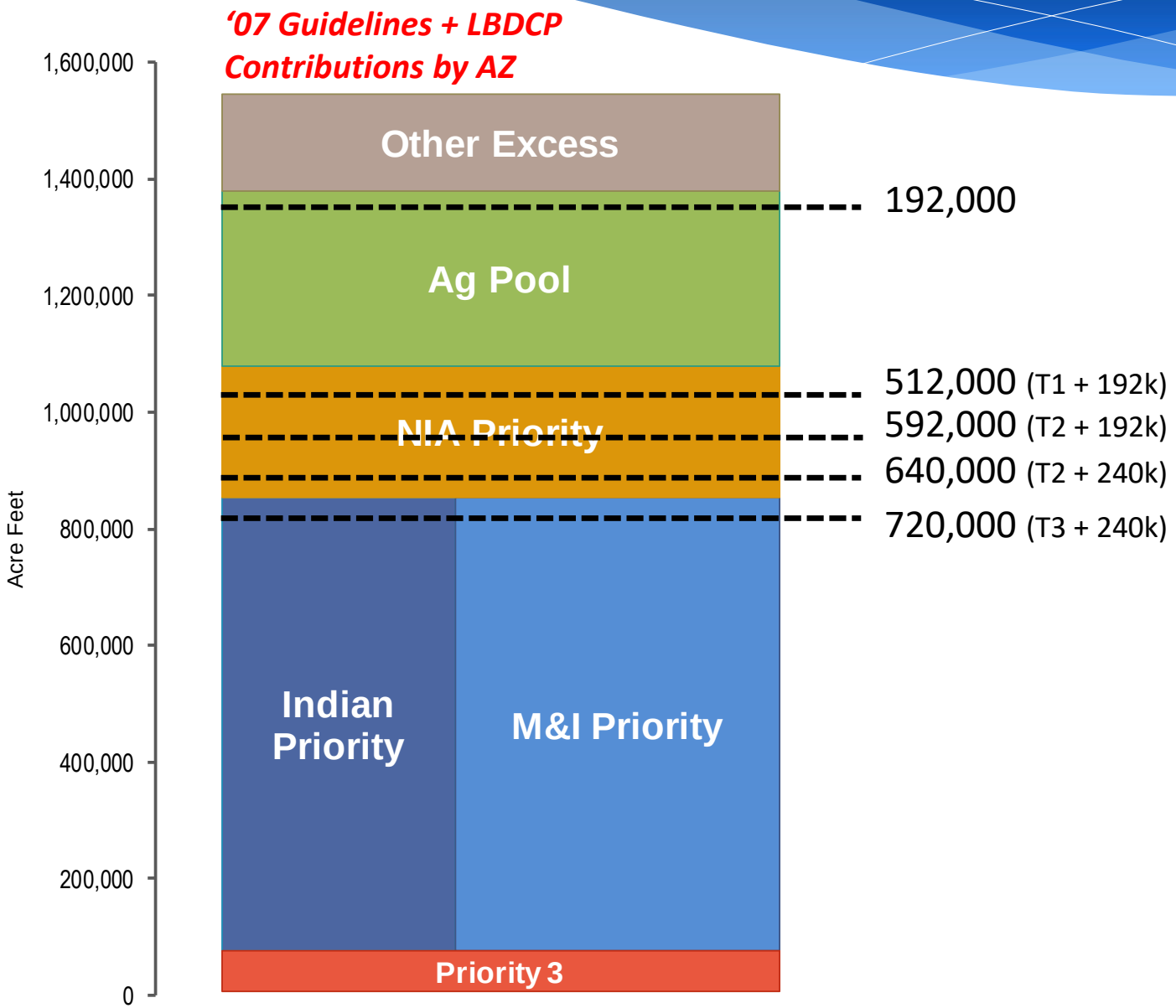
The Goal:

Reduce the probability of reaching critical elevations that would cause draconian reductions in water deliveries

The Strategy:

- Agreement between Arizona, California, Nevada & Reclamation
- ADWR Director needs Arizona Legislature authority to sign (Pursuant to A.R.S. § 45-106)
- Will seek Congressional authorization of Lower Basin DCP

CAP Priority Pools – LBDCP



Framework for implementing LBDCP in Arizona

The Need:

To partially mitigate the impact on Arizona water users from the additional reductions resulting from the inter-state DCP

The Goal:

Discuss and recommend how to adopt and implement the LBDCP in a way that is acceptable to Arizona water users

4 Essential Tools

- CAP Ag Mitigation
- Tribal ICS (Now Arizona ICS)
- Arizona System Conservation
- CAP Excess Water Plan

Framework for implementing LBDCP in Arizona

Actions:

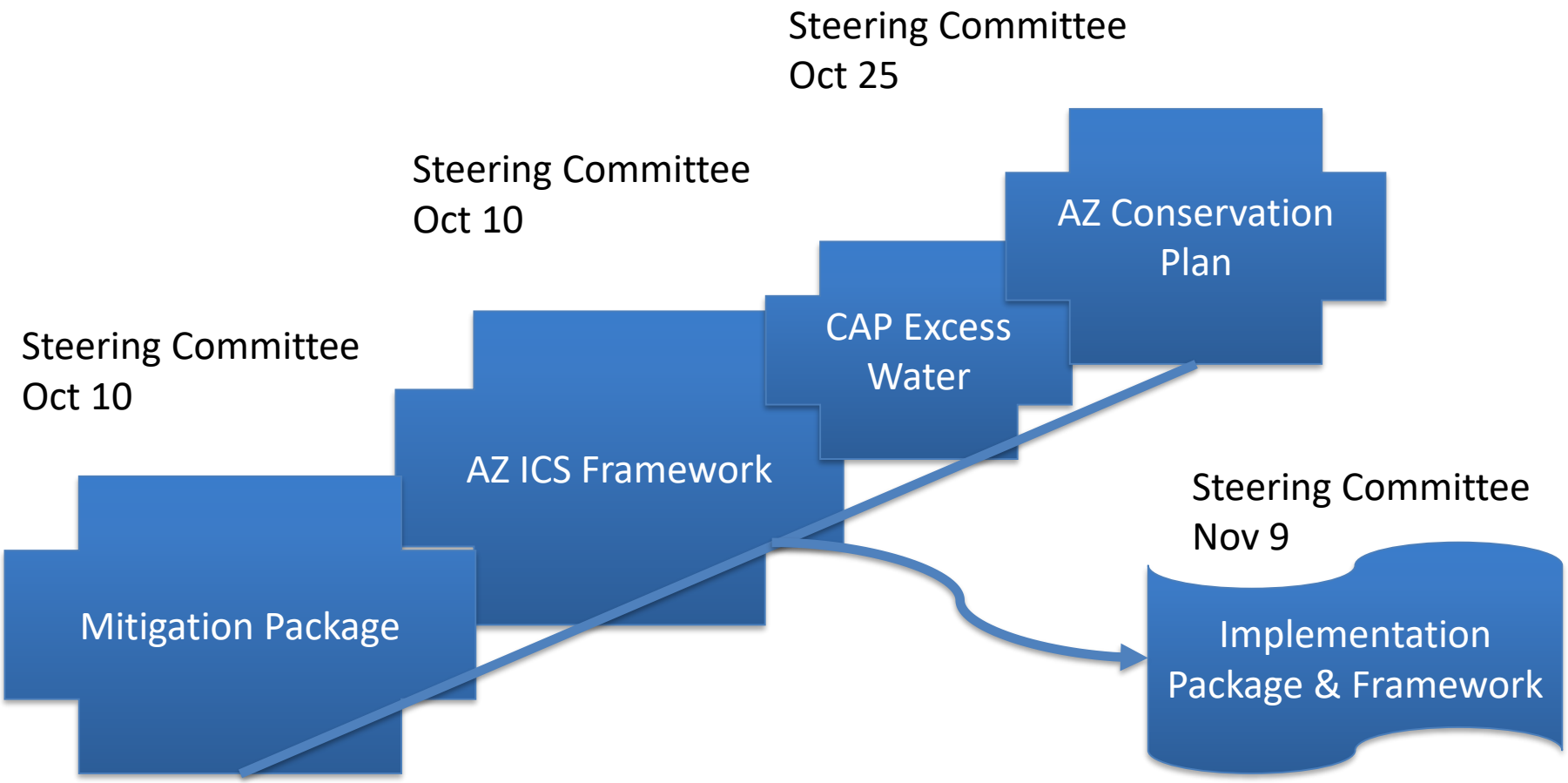
- ADWR and CAWCD have established a Steering committee that meet every two weeks
- Two work groups have been established – the CAP Ag Mitigation Work Group and the Tribal ICS work group. These work groups have been meeting regularly as well
- Both ADWR and CAWCD have webpages dedicated to the Intra-Arizona Negotiations

Presentation Materials Available at:

ADWR's website – new.azwater.gov/lbdcp

CAWCD's website – www.cap-az.com/AZDCP

Arizona LBDCP Implementation Plan



Ag Mitigation WG Update – Issues remaining

1. Annual vs. Fixed?
2. 3 AMA vs Pinal Mitigation?
3. Full Mitigation vs Partial?
   - Alternatives to full mitigation volumes?
4. Explore potential for Broader Mitigation to NIA and CAGRD/Developer impacts
5. Water and funding commitments
   - Certainty and enforceability

- **The Work Group will provide a recommendation to the Steering Committee by Sept. 27th**

Arizona ICS Update

Two agreements are needed:

- Framework Agreement for Arizona ICS Program
  - Secretary of the Interior
  - ADWR
  - CAWCD
- Tribal ICS Delivery/Implementation Agreements
  - Secretary of the Interior
  - Each individual Tribal Contractor

Questions?

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ARIZONA DEPARTMENT of WATER RESOURCES
EST. 1980

PROTECTING
ARIZONA'S WATER SUPPLIES
for CURRENT & FUTURE GENERATIONS

Refined Estimate of Mitigation Tools

- Estimated Firm Tools ~ 820 kaf, or 117 kaf/yr, available during T1/T2
- Potential resources TBD

Tools	Annual Vol. (KAF/yr)	Total Vol (KAF)	Creation Cost ($M/yr)	Creation Cost ($M)
Lake Pleasant	7.14	50	NA	NA
CAP ICS*	60	420	NA	NA
Comp. Sys. Con (Mitigation)**	50	350	$ 8.25 - $10	$ 57.75-$70
Total Firm Supplies	**117.14**	**820**	**Up to $10M/yr**	**Up to ~$70M**
New ICS***	TBD	TBD	TBD	TBD
USF to GSF	TBD	TBD	TBD	TBD
GW Dev./Infrastructure	TBD	TBD	TBD	TBD
Total Potential Supplies	TBD	TBD	TBD	TBD

Draft Information as of 9/28/2018

* CAP ICS includes current, pending and anticipated through 2019
** Cost range reflects historic average and the anticipated higher future costs
*** Tribal and Non-tribal efforts

Fixed & Annual Full Mitigation Schedules

- Fixed Schedule for Ag Mitigation provided during T 1& 2 shortages
- Annual Schedule for Ag Mitigation based on T1 or T2 condition

FIXED MITIGATION	'20	'21	'22	'23	'24	'25	'26
3 AMA wt. Vol.	150	110.53	99.47	110.53	102.4	100.2	105
Pinal wt. Vol.	106	79.25	71.75	79.25	73.71	72.22	75.50

ANNUAL 3 AMA	'20	'21	'22	'23	'24	'25	'26
T1 Shortage	150	150	150	150	150	150	150
T2 Shortage	60	60	60	60	60	60	60

ANNUAL Pinal	'20	'21	'22	'23	'24	'25	'26
T1 Shortage	106	106	106	106	106	106	106
T2 Shortage	45	45	45	45	45	45	45

Draft Information as of 9/28/2018

Mitigation Plan Decisions Update

1. Annual vs. Fixed? Ag interests and others support Fixed approach, full consensus was not reached
2. 3 AMA vs Pinal + HVIDD Mitigation? Ag interests and others support Pinal, HVIDD, QCIDD, full consensus was not reached
3. Full Ag Mitigation vs Ag Partial? Ag interests support Fixed Approach, M&I interests suggested T1 only mitigation
   - Alternatives to full Ag mitigation water to achieve a full mitigation package? No alternative brought forward
   - There are other questions that have been raised outside of these meetings regarding ag mitigation volumes that need to be discussed further in the side group meetings.
4. Mitigation to NIA and CAGRD/Developer impacts Support for concept (some NIA opposed mitigation for themselves, others supported it) - Developers asked for higher (unspecified) amount
5. Support for water and funding commitments Ag interests and others support waiver concept, opposition by some M&I interests, support for considering priorities for mitigation tools to preserve limited supplies, desire to refine USF-GSF and additional compensated approaches,
   - Certainty and enforceability support for approach

- **The Work Group is working toward a recommendation to the Steering Committee on Oct. 10th**